DOCUMENT RESUME

ED 128 056 JC 760 494

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TITLE Multimedia Instruction in Basic English.
INSTITUTION San Antonio Coll., Tex.
PUB DATE [76]
NOTE 12p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Autoinstructional Laboratories; Community Colleges; *Computer Assisted Instruction; *English Instruction; Individualized Instruction; Instructional Innovation; *Junior Colleges; *Multimedia Instruction; *Remedial Instruction
IDENTIFIERS San Antonio College

ABSTRACT

Individual, self-paced, and computer assisted instruction (CAI) characterize the English Multimedia Laboratory of San Antonio College, where entering freshmen with composite American College Test scores in the lowest category of 1-15 have increased from 28% in 1967 to 61% in 1975. The multimedia lab, operational since 1973, replaced the relatively ineffectual Basic English remedial course. Personalized instruction is the primary characteristic of the laboratory, each student moving at his own pace through ten learning areas according to specified behavioral objectives. CAI plays an integral part, providing nearly instantaneous feedback and additional tutoring, as necessary, to student users. CAI has also been adapted for use with hearing-impaired students. Results of the multimedia laboratory, in addition to increased levels of competency, include: individualized learning of basic skills at the student's own level of performance, individual review and testing, increased motivation, immediate reinforcement, improved attendance and student involvement, a sequence of instruction, and self-tutoring. A comparative study of students' subsequent freshman composition grades has shown that grades of D and F decreased from 54.02% in pre-lab years to 38.64% since implementation of the lab. (JDS)

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ED128056

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# MULTIMEDIA INSTRUCTION IN BASIC ENGLISH

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Multimedia instruction offers the best hope for functional literacy to thousands of students at San Antonio College, a large urban community college with a headcount enrollment of 22,000 students per semester. In the face of a national decline of competence in reading and writing by college freshmen, a major role of San Antonio College, like many other senior and community colleges in the nation, is to provide effective instruction in Basic English for a growing number of college students who have substandard writing skills.

Individualized, personalized, self-paced, and computer assisted instruction characterize the English Multimedia Laboratory of San Antonio College, developed by Vivian Adams Rudisill, Professor of English. This comprehensive instructional program is utilized by freshmen with low American College Test English scores of 1-14 or low Scholastic Aptitude Test verbal scores through 379 and also by any other students who desire to learn the fundamentals of English usage. The instructional program began in the spring semester of 1973, and every semester since then, new features have been added. Today about 3,500 students are enrolled annually in the program.

## SAN ANTONIO COLLEGE

A strong effort is being made at San Antonio College to improve the quality of higher education for all students who have experienced difficulty in taking full advantage of post-secondary educational opportunities because of motivational and academic barriers. The development of adequate writing skills requires innovative instructional approaches for the large number of nontraditional students enrolled at San Antonio College, which respects the dignity and worth of every individual and endeavors to educate all students not just the academically well-prepared and those easy to teach.

San Antonio College, an open-door community college, is totally committed to meet the educational needs of the community. According to Dr. Jerome F. Weynand, San Antonio Union Junior College District President, "San Antonio College is committed to its assigned role as a developing institution of community education. Its purpose is to provide, within

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recognized standards, comprehensive and meaningful continuing education experiences."

Millions of our adult population are not functioning effectively in our society. According to figures recently released by the U. S. Office of Education, only about 55 million, less than one-half of the nation's total adult population (adults 18-65), were found really proficient in reading, writing, computation, and problem solving skills. There is hope for the educationally disadvantaged students who are attending San Antonio College, and the hope lies in the Multimedia Laboratory, Department of English, Dr. Roger Bailey, Chairman. There is also hope for all who are weak in basic English skills.

## THE EDUCATIONAL CHALLENGE

The severity of the educational challenge facing San Antonio College today is evidenced by the fact that the incoming freshmen at San Antonio College with composite American College Test scores in the lowest category of 1-15 increased from 28 percent in 1967 to 61 percent in 1975.

The increasing number of freshmen with low American College Test scores is matching the national trend, and also matching the national trend is the alarming number of failures in Freshman Composition throughout the nation as well as at San Antonio College.

The task of teaching Basic English to college students who are unable to write effective English reflects an awareness of the changing nature of today's society and the constituents with which postsecondary education must now deal.

## SUCCESS OF MULTIMEDIA INSTRUCTION

Prior to the establishment of the English Multimedia Laboratory in 1973, the Basic English remedial course was not too effective in preparing students to complete successfully Freshman Composition. A comparative study made of Freshman Composition grades by students who had formerly passed Basic English with a grade of A, B, or C reveals that in Freshman Composition there has been a decrease of D and F grades from 54.02 percent in the pre-lab years to 38.64 percent in the post-lab years.

As the innovative programs in the Multimedia Laboratory expand, it is expected that the percentage of passing grades in Freshman Composition of those students who have successfully completed the Multimedia Laboratory program will increase considerably.

An examination of the grades of two teachers in Basic English indicates that the number of passing grades in Basic English which each posted during the years 1967-1971

was far lower than the number of passing grades these same two teachers posted in the fall of 1975 after the Computer Assisted Instruction program had been in operation in the Multimedia Laboratory.

## PERSONALIZED SYSTEMS INSTRUCTION

Personalized instruction is the primary characteristic of the Multimedia Laboratory. In addition to personalized education in the English Multimedia Laboratory at San Antonio College, there is also the recycling of the same material or information until the student thoroughly learns the basic concepts of sentence structure.

The students who choose to register for a Multimedia Laboratory class have the advantage of being in both a traditional atmosphere in the classroom and a nontraditional atmosphere in the Multimedia Laboratory. The time spent in the Laboratory constitutes one third of the time a student normally spends in the classroom. Under this program, he spends two hours in the traditional classroom and one hour in the Laboratory with his regular classroom teacher. In the classroom, the teachers utilize the time in the traditional manner discussing essays, reviewing spelling and vocabulary exercises, analyzing essential writing skills, analyzing oral assignments, having students write in-class themes, and covering other essential material. In the Multimedia Laboratory, the teachers utilize the time for individualized and personalized instruction, each student moving in a self-paced environment. Also, the students return to the Laboratory during other free periods using equipment, working on computer terminals, studying additional explanations, completing work sheets in the programmed text manual, taking advantage of the time to spend with tutors and proctors, taking tests, and learning because they are interested in learning and not because they are compelled to attend the Laboratory. In this self-paced environment, the students proceed through ten learning areas, with all the material in the ten areas correlated according to the behavioral objectives specified in the programmed text manual.

## COMPUTER ASSISTED INSTRUCTION PROGRAMS

The most outstanding instructional activity--and the one that has developed student interest the most--is Computer Assisted Instruction. Although mastering content is important in the Multimedia Laboratory, much more important is the emphasis that has been placed on the self-paced, the individualized, and the personalized aspect of learning.

What does a machine have to do with personalized education? Two-way communication between student and machine is possible. One should visit the Multimedia Laboratory at San Antonio College, and he will see the machines interacting with the students. He will see the machine call the student by name. If a student makes a mistake and gives the wrong answer, the computer terminal responds by typing in the correct answer and then giving the reason why that answer is correct. Also, the terminal directs the student to another reinforcement area and says "Go to Slide No. X and Tape No. Y." The student then moves to the Random Access Station where the mistake he made on the terminal is again explained on another color coded and illustrated slide and tape. Thus, a student can have an additional immediate review of material he missed on the printout. This Random Access Area features a mini-course utilizing sixty-five mini-course slides and reel-to-reel tapes which students use for self-tutoring and for reviewing the entire set of slides found elsewhere in the Laboratory. In addition, the printout terminals grade exercises and give correct scores in .32 second.

There are three different Computer Assisted Instruction programs in the Laboratory.

Random Selection Testing Data Bank

The first CAI program, a testing program, was begun in 1972, and plans are now being made to complete this program. This individualized testing system offers a unique approach to testing students' knowledge of English skills in all phases of English communication. From the data bank being compiled on the IBM 370-158 computer for random selection, instructors will have the ability to use the IBM computer to select items that are to be used in their examinations, whether for an entire class or for individual students. After requesting these items from the system and administering the examinations, the instructors can in turn have examinations test scored by data processing services. In every test there are two levels: easy and difficult. When a student masters the difficult versions, he has an excellent comprehension of the material covered. Tests are available for each unit and each module as well as pre-post tests.

Each semester the Multimedia Laboratory students are given a pretest and a posttest which are computer graded. A survey from figures available on computerized graded tests shows that in the spring semester of 1973 only three percent of the students passed the posttest but in the summer session of 1976, 63.81 percent of the students passed the posttest.

With the addition of the CAI program on the display terminals and with the introduction of a one-week "crash" course at the beginning of spring semester 1976 to introduce students to information covered in the text manual, it is expected that many more students will make a passing grade in Basic English and will then proceed to make a passing grade in Freshman Composition.

IBM 2741 Computer-Typewriter Terminals

Three IBM 2741 Computer Typewriter Terminals are now a permanent feature of the Multimedia Laboratory. When actual use of Computer Assisted Instruction was planned in the Basic English Classes in 1973, the following expected results were listed: individualized learning of basic writing skills at own level of performance, individualized review, individualized testing, increased motivation, immediate and reinforcing response, improved student attendance, more student involvement, and a sequence of instruction.

Much to the surprise of everyone concerned, these are not the only results which have come from computer terminals. It is believed that the best result is the self-tutoring. Another result, not originally expected, is the intense excitement for learning that the students show as they work at a computer terminal.

The development of the programmed text manual created a new element which will diminish terminal time for individual students and which will allow more students to work on terminals. At the end of the first five of twenty questions, if a student makes 100, the terminal tells him to leave that module and proceed to the next. However, if he misses one of the five questions, the terminal tells him to proceed to the next five of the total twenty. Again, if a student gives a wrong answer, the terminal responds by supplying the correct answer and a reason why that answer is correct.

The printout is valuable to the remedial students who need to take it to their teachers for grade recording but more important to take away from the Laboratory as a study guide. It has also been determined that the faster students can successfully use the same program on the display terminals.

For the hearing-impaired, Computer Assisted Instruction with color video tape in total communication is possibly the first to be introduced in the nation. The program gives the hearing-impaired an opportunity to work successfully on the terminals, and CAI is playing

a significant part in the learning progress of these students.

Cathode Ray Tube (Visual Display Terminals)

Three Cathode Ray Tube Terminals with television-like screens have available two programs: one written in APL (A Programmed Language) for entry level of remedial students and one written in Basic Language for a Freshman Composition level course.

The former of these covers the same five learning units of the programmed text manual used in other learning areas in the Multimedia Laboratory.

The latter is a Freshman Composition course, a computer-based English project sponsored by the University of Texas, Austin, under a National Science Foundation grant. The materials in this program are divided into seven modules, each of which may be used in any sequence. Although "these modules are written for non-remedial students," the students in the Multimedia Laboratory at San Antonio College are successfully completing the program after they finish the first three of five learning units in the Laboratory.

From computer-based (machine) individualized instruction to one-to-one tutoring and proctor personalized instruction, the remedial students are acquiring writing and language skills essential for a successful educational career and a productive life.

## OTHER EDUCATIONAL SERVICES IN THE MULTIMEDIA LABORATORY

Although Computer Assisted Instruction was the first instructional activity considered when some type of nontraditional program for the nontraditional student was conceived, it has been the last feature to be added to the Multimedia Laboratory. In the meantime, the Laboratory has been furnished with various other types of educational services which make the inclusion of Computer Assisted Instruction even more valuable to students at San Antonio College. The following educational services have been developed:

1. INDIVIDUAL CARRELS. Each is equipped with a 35mm. slide projector and cassette player. The 250 slides are coded by color and illustration to usage in a sentence. Colors and illustrations are utilized as devices for rapid identification of sentence elements.

2. PROGRAMMED MANUAL. The manual is used in conjunction with slides and tapes but also independent of them. Manual lessons have clearly stated behavioral objectives.

3. TUTORING PROGRAM. Tutors are utilized to insure that a student has immediate assistance for individual difficulties. Besides tutoring, tutors administer and grade exercises and also give students immediate feedback.

4. TEST BANKS. Three versions of forty-five tests are available for immediate testing and feedback.

5. PROCTORING PROGRAM. In January, 1975, an Independent Studies Freshman Composition course was begun and enrolled in it were exceptionally qualified former remedial English students. Part of the classroom time is devoted to proctoring in the Laboratory. These students proctor for regular college credit.

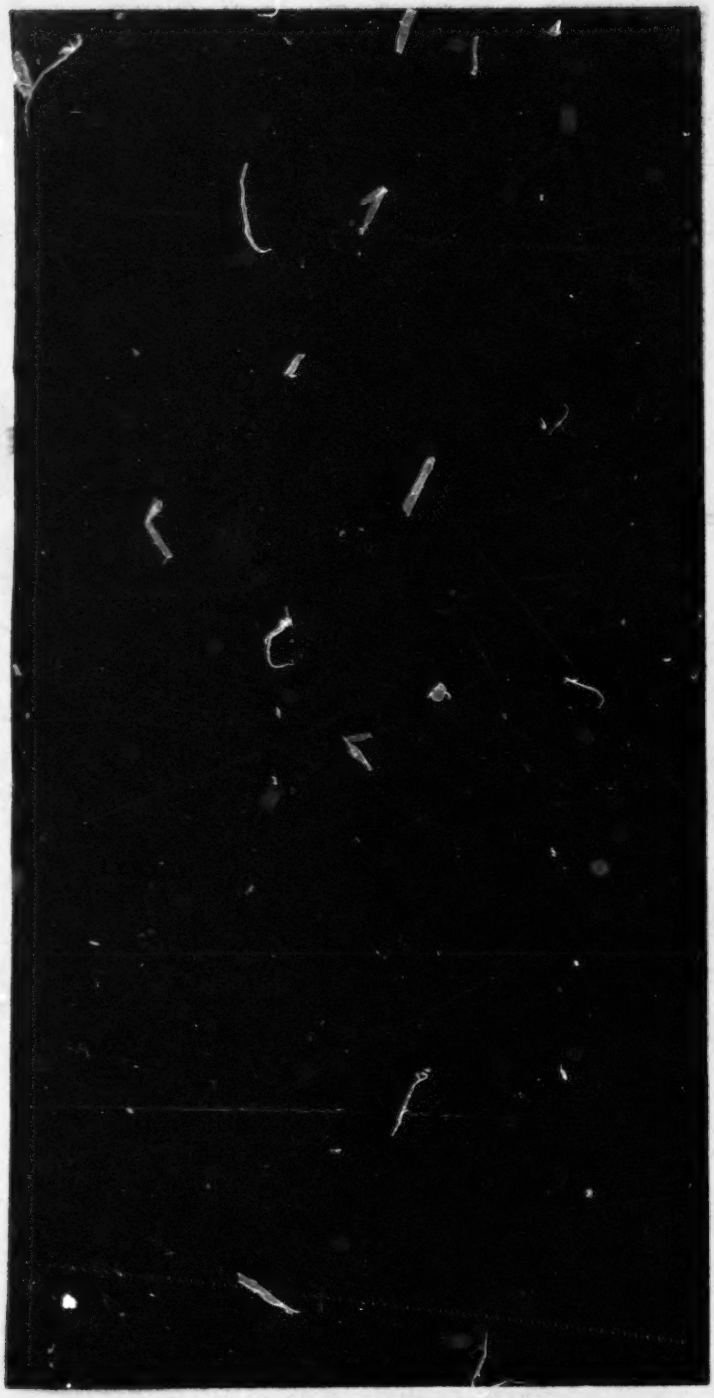
6. TELEPHONE TUTORING LINE. Available to all students is a telephone tutoring service with a direct telephone line to the Multimedia Laboratory. This service was initiated so that all students who desire help at any time between 8:00 A.M. and 10:00 P.M. with material covered in the Laboratory or with material in Basic English or Freshman Composition can be assisted immediately.

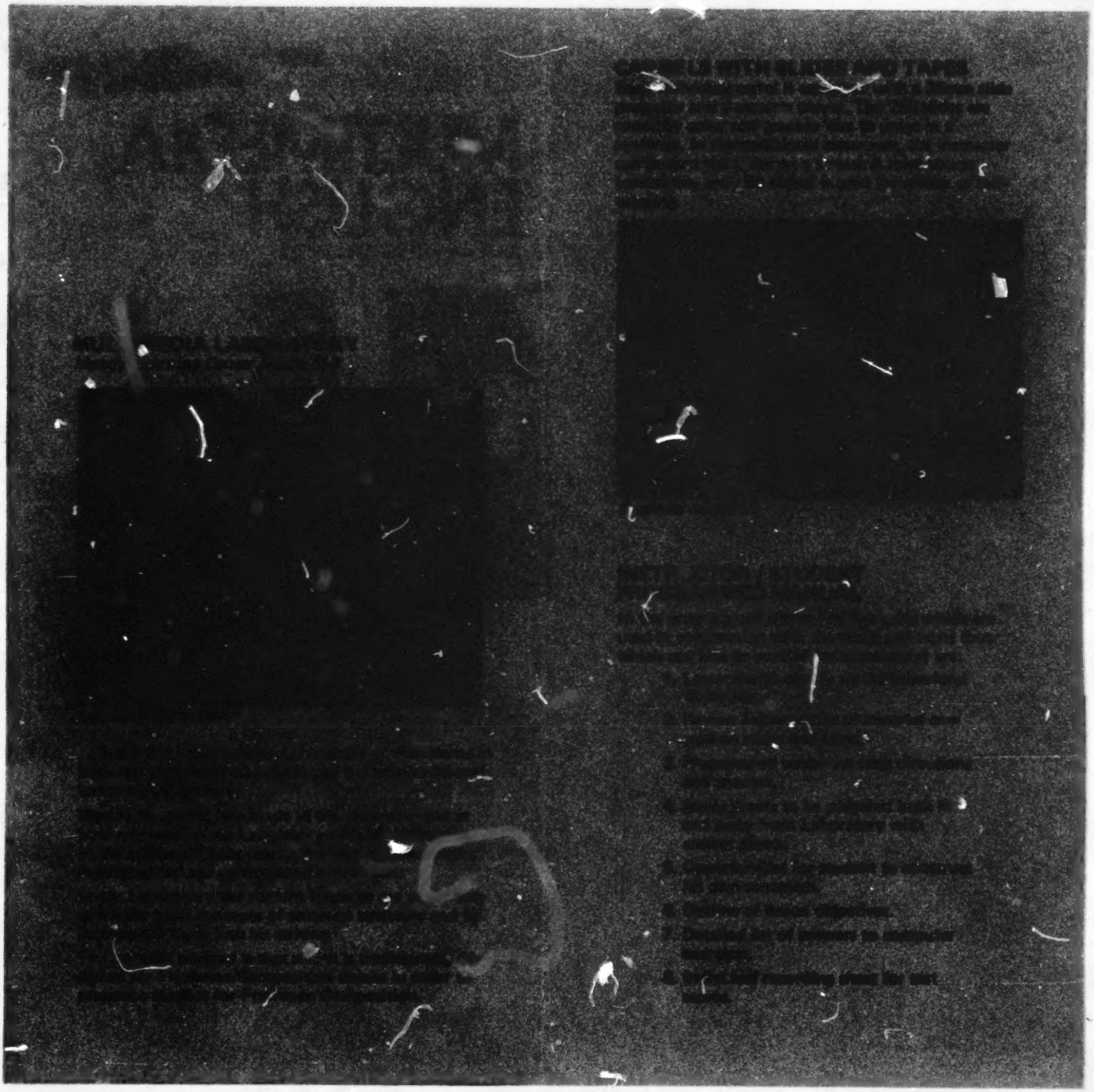
7. HEARING-IMPAIRED PROGRAM. Hearing-impaired students can: view illustrated colored slides and read tape script, use printout terminals and visual display terminals, view slides and material in programmed manual on color video-tape in TOTAL COMMUNICATION. The program utilizes professional interpreters using sign language, voice, and coordinated lip movements.

8. TEAM TEACHING. When class is held in the Laboratory, the teacher is present at all times to assist students individually. All team teaching classes involving students with extremely low ACT scores will be scheduled an additional three hours per week in the Laboratory with the students spending a total of six contact hours per week instead of the regular three.

As the present relatively new Computer Assisted Instruction programs expand in the Multimedia Laboratory at San Antonio College and as additional innovative programs are introduced, it is expected that the Multimedia Laboratory students will continue to be successful not only in future English classes but also in all of their other educational endeavors because of the improvement in their writing skills. The Multimedia Laboratory provides an opportunity to improve writing skills for those who could not complete college without special individualized, personalized, self-paced, and computer assisted instruction.

Galileo once stated: "You cannot teach a man anything; you can only help him to find it within himself." Students are learning basic writing skills. They are also attempting to find the answers within themselves, for one of the greatest benefits of the entire program in the English Multimedia Laboratory is student self-motivation.





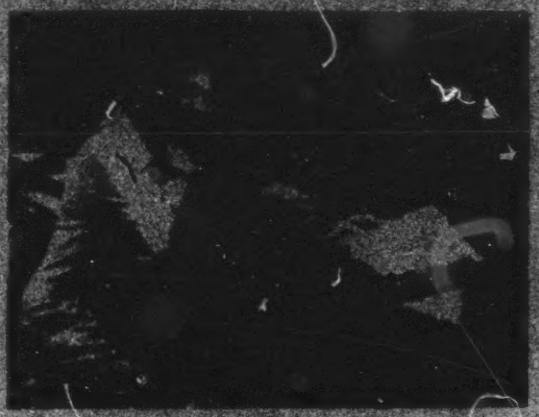
## COMPUTER ASSISTED INSTRUCTION (CAI)

### TYPEWRITER TERMINALS

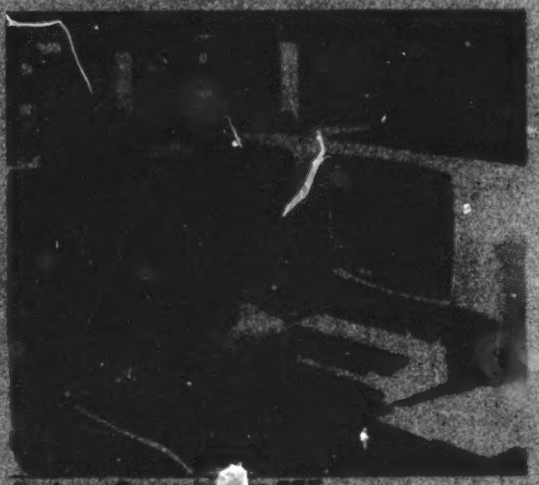
These computer typewriter terminals "talk" to students on paper printout. If a student gives a wrong answer, the terminal (IBM 2741) responds by supplying the correct answer and giving a reason why that answer is correct.

*IBM 2741*

If a misspoke is made, the computer terminal instructs the student to "Go to Slide No. 'x' and Tape No. 'x'." These directions refer a student to a Random Access 860 Slide Projector and a Wollensak reel-to-reel recorder for additional review.



*Accuracy / Student Manual*



*Freshman Composition CRT*

### CATHODE RAY TUBE (VISUAL DISPLAY TERMINALS)

These Cathode Ray Tube (visual display terminals) contain a Freshman Composition level English program developed at the University of Texas, Austin, under a National Science Foundation grant. Completion of this program will have a significant impact on the type of critical perception needed in Freshman Composition at San Antonio College.

Present plans for further development of CAI (Computer Assisted Instruction) will be in-house programs using Coursewriter III.

### TESTING PROGRAM

Computer Managed Instruction (CMI) is an individualized testing system developed on an IBM 370-158 computer. A data bank allows for random selection of test questions at two levels: easy and difficult. Tests are scored by machine.

At present, three versions from a test file are being administered for [illegible] Item testing and feedback.

## TUTORING PROGRAM

Tutors and proctors give a student immediate assistance by administering and grading exercises and tutoring.

A student may be assigned to a specific tutor for one-to-one instruction.

The tutoring is coordinated by a full-time library supervisor who, in addition to overseeing tutor operations, screens prospective tutors to determine their knowledge of the material and their probable ability to become effective tutors.

*Tutor and student*

## LEARNING LAB LEARNING LINE

For telephone tutoring assistance in English 300 and 601A phone: 734-7811 Ext. 328

8:30 A.M. – 10:00 P.M. Mon–Thurs
8:00 A.M. – 4:00 P.M. Friday
9:00 A.M. – 12:00 Noon Saturday

*Tape Cassette Learning*

## HEARING IMPAIRED PROGRAM

Hearing impaired students (partial loss to total hearing loss) can:

1. View illustrated color slides and read tape script.
2. Use printout and visual display terminals (CRT).
3. View slides and material in programmed manual to color video-tape in TOTAL COMMUNICATION. The program utilizes professional interpreters using sign language, voice and coordinated lip movements.

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OCT 22 1976
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